

in the village, but so seldom that people never observed her. That made it unpleasant, and she staid at home still more closer.

But on that morning while they sat chatting with grandma, she felt a deal of real discontent for the first time in months.

Clara Bosworth, her bosom friend, was to give a party that evening, and she could not go. For weeks preparations had been going on in their quiet family. She had given up the money saved for a new winter cloak that Lettie's green silk might be retrimmed for the occasion, and the best dress she had in the world was a plain garnet-colored poplin with black velvet trimmings.

She had faintly suggested that she might wear that, but the cry of dismay from her sisters silenced her.

"Go and wear that old poplin!" cried Lettie, from the clouds of white billowy lace that were to adorn the green silk. "You must be crazy?"

"I should think so," chimed Margaret, who was fitting a lace bodice over the waist of the delicate lilac satin. "Do you want Austin Bosworth to think us a family of paupers? It is to be a grand affair, and Clara expects all who honor it with their presence to pay her respect enough to dress respectably. It is Austin's first appearance after his European tour, and surely you do not want him to think meanly of us?"

The tears came up, but Janet was brave, and no one saw them.

That night, when the two girls—the one in her dark beauty and wonderfully becoming array, the other all delicacy, her fair, pearl loveliness enhanced by the pale purple color of her dress—came laughing into grandma's room, a little shadow darkened her face, and she found it very hard to keep back the tears.

"Fine feathers make fine birds, but fine birds do not always sing the sweetest, Janie," said grandma, after they were gone. "I know who is the true one in this family. I know my little singing bird, Janie, and she is dearer than a dozen fine ladies. Austin and Clara will come to-morrow, and he will tell us about his travels in foreign lands, and you will be far happier than you would be up at the house to-night, with dancing and confusion."

"I suppose so, grandma," and Janet took her seat by the fire and went on knitting with a peaceful face.

The elder sisters came home with rumpled plumage, but in high spirits.

Austin Bosworth had returned, a handsome, polished gentleman, and had flirted desperately with Lettie.

"Why, grandma, he almost proposed to her!" laughed Margaret, who was engaged to Judge Leonard's hopeful son, and, therefore, had no place for jealousy. "More than one of the company predicted that it would be a match."

"Don't count your chickens before they are hatched," called grandma from her pillow. "Mr. Austin Bosworth is no fool, I can tell you!"

"What an old croaker!" They were entering their chamber across the hall, but grandmother's ears were not dulled by age, and she clearly heard them.

"Don't mind them, grandma," whispered Janet, who had waited to help them lay aside their finery.

"Mind them! Do you think I shall, Janet Leeds?"

Next day Austin Bosworth came. He was too familiar with the old house to stop for bell ringing, and he entered, crossing the hall directly past the parlor door, where Margaret and Lettie waited in their tasteful afternoon costumes, and walked straight on to Grandma Leeds's room.

She was there with her work, her placid face beaming beneath the white lace-bordered cap.

A graceful, girlish figure half knelt beside her, wreathing with deft fingers a bunch of evergreens into a frame for a mantel ornament, and her eyes were lifted smilingly into the old lady's face.

He entered and closed the door before either saw him.

"Grandma Leeds!" "Why, bless my heart, it is Austin! Come here, my boy!"

And the fine gentleman came and gave both hands to her in his delight.

"Janie, my little playmate, too! What a happy meeting! Clara came down, dressed for a call, and declared she would come, but I told her no! I knew the amount of gallantry I should feel obliged to use, and I preferred that my first visit should be like the old ones."

"You are right. We are better pleased to have it so, are we not, Janet?"

His call lengthened itself into two hours, and during the time he told pleasant stories and chatted like the boy of by-gone days, but not once did Margaret or Lettie's name pass his lips.

When he went away he met them coming with disappointed faces from the parlor, where they had been waiting for him; but he only lifted his hat and passed out. The grandma and Janie received a sound scolding, such as those two only knew how to give, and the shadow of discontent again fell on Janet's spirit.

Ah, that long, cheerless winter! What a story Janet could tell you of disappointments, of happy parties which she had no share, of moonlight rides, of joy and merri-

ment! She had only that one comforter, kind, patient grandma; for now that Austin Bosworth had come, the way was harder than before.

He came and escorted Lettie to parties, and sometimes chatted with grandma, but nothing more. She saw nothing more—she did not catch the good-natured smiles he gave her from the sleigh as he rode away—and Lettie never told her how often he asked for her.

Along with grandma, Janet wished for better things, and wondered why she was so harshly dealt with.

At last even the society of her aged companion was denied her, and in her bed the old lady gradually faded away. Day and night Janet sat beside her, with the knowledge that she was beyond earthly help—waiting upon her, yielding to the childish whims, and shutting out everything youthful and beautiful from her sight.

"Playing household angel," said Margaret scornfully.

"Working for grandma's fortune of old shoes and worsted stockings," Lettie cruelly added.

"Doing her duty by the faithful woman who had taken the three motherless children into her heart, and filled the lost one's place, so far as God permitted," her own heart said, and steadily she worked on.

The first of May brought invitations to the last ball at the Bosworth house, and while the two elder sisters laid out their finery, Janet folded her tiny misgiver, and hid it away next to her heart as a sacred bit of paper, bearing Austin's firm, broad chirography upon it.

That night grandma was very ill, and when Margaret and Lettie fluttered in with their gay dresses, Janet met them, and almost forcibly put them out of the room.

"I beg, you, girls, to have a little respect for poor grandma—she is very ill to-night."

"Nonsense! Don't be a fool, Janet—anybody would think she was dying."

"I believe she is."

Their reply came in a violent slam of the door, and Janet was left alone with her patient.

The hours dragged wearily, and overcome by her long, sleepless watches, Janet fell fast asleep.

Two hours later she awoke with a start, and in an instant she saw that a dread change was visible in grandma's face.

Like one in a dream, she walked to her father's door, and awakened him.

"Father, grandma is worse, I believe her dying. You must go to Dr. Berne. You will find him at the ball. Go quickly."

She went back and sat there wearily waiting for something, for a sound, a sign from the dying woman; but none came. Slowly but perceptibly the lines settled around the pleasant mouth, and the dark shadows crept over the pallid face, but no sound issued from the pale lips.

Janet bent her head. There was a faint flutter—no more, and she clasped her hands. Would grandma disappear before her eyes, and never speak a word?

She caught the cold hand in her own, and cried aloud:

"Grandma! speak to me! speak to your little Janet! Don't you hear me, grandma?"

But grandma heard nothing. The chillness of death had settled down, and even as she knelt there, the breath fled, and Janet was alone.

She understood it, all when she arose, and she sank back half fainting, in the arm chair near the bed.

"Janet, my poor darling!"

She lifted her head. Austin Bosworth was leaning over her.

"My little girl! Why did you not send word to me to-night, and let me share your sorrow?"

"You, Austin?"

"Yes, have I not—Ah, forgive me! This is no time or place. I missed you as I have always missed you, but thought it was your own pleasure to remain at home. When your father came in with a white, frightened face, and whispered to Dr. Berne, I knew you were in trouble. I came at once, and Janie, I shall not again leave you."

She knew his meaning, and did not put him away, when he held her to close in his arms and drew her into the parlor.

Margaret and Lettie coming in with their faces horror-stricken, saw him holding her in his arms, her tired head resting wearily upon his shoulder, and the proud Lettie said:

"Mr. Bosworth—I am surprised?"

"You need not be. This is my privilege, now and forever."

Three days after they were gathered in that same parlor to hear grandma's last will and testament read. After some little directions, it said:

"And to my beloved grand-daughter Janet Leeds, I bequeath the Holmes estate, together with my entire stock of furniture and money, amounting to ten thousand dollars."

Janet's father smiled upon his astonished and crest-fallen daughters.

"It was mother's whim! She never desired it to be known. Therefore you were ignorant of the fact that she had a dollar beyond the annuity I held for her."

When, six months later, Austin and Janet were married, her oldest sisters dared to say that he married her for her money. He knew better, and so did I.

THE MOURNING WIDOW.

BY JOHN G. HAKE.

I saw her last night at a party,
(The elegant party at Mead's),
And looking remarkably well
For a widow who was in her weeds;
Yet I knew she was suffering sorrow
Too deep for a tongue to express,
Or why she had chosen to borrow
So much from the language of dress.

Her shawl was as sable as night,
And her gloves were as her shawl,
And her jewels that flashed in the light—
Were as black as a funeral pall.
Her robe had the hue of the rest,
(How nicely it fitted her shape!)
And the grief that was heaving her breast,
Boiled over in billows of crape.

What tears of vicarious woe,
That else might have sullied her face,
Were kindly permitted to flow
In rindles of ebony lace.
While even her fan in its play
And seemed to be waving away
The ghost of the angel of Hope!

Yet as rich a robe of a queen,
Was the sombre apparel she wore,
I'm certain I never had seen
Such a sumptuous sorrow before;
And I couldn't help thinking the beauty,
In mourning the loved and the last
Was doing her conjugal duty
Although regardless of cost.

One surely should say such devotion
Performed at so vast an expense,
Betrayed an excess of emotion
That really was something immense;
And yet as I view at my leisure,
Those tokens of tender regard,
I thought it was scarce without measure;
The sorrow that goes by the yard.

Ah, grief is a curious passion;
And yours—I am sorely afraid.
That the very next phase of the fashion,
Will find it begin to fade;
Though dark are the shadows of grief,
The morning will follow the night
Half tints will betoken relief,
Till joy shall be symbolized in white!

Ah well!—it was idle to quarrel
With fashion or aught it may do;
And so I conclude with a moral
And a metaphor warranted new;
When measles come handsomely out,
The patient is safest they say,
And the sorrow is mildest no doubt.
That works in a similar way.

SCIENTIFIC.

A NEW PREVENTIVE FOR SLIPPING BELTS.

We doubt if any more prolific source of loss of power in its transmission from motor to work exists than through the medium of slipping belts; nor, as a moment's consideration will show, is there any ordinary mechanical defect more destructive to that system of careful economy which should be the rule in every well regulated workshop. It is of little use to maintain and run a powerful engine, if the very power which represents the cost of so much labor and so much fuel is to be wasted before it can be applied to useful purposes. Suppose, for example, a pulley makes 100 revolutions per minute. Experiments conducted in England in 1863 proved that, when the power is transmitted by belting, there are, out of this number of revolutions, two slipped. Clearly, then, but 98 per cent of the power is forwarded to the work; and if there be numerous intermediate gearings, a still proportionally less fraction of the original efficient labor of the engine becomes utilized. In a case of which we were recently informed, fully 8 per cent of the power was totally lost. For a 200 horse power engine, 8 per cent means 16 horse power thrown away, or, at a low estimate, 32 pounds of fuel per hour burned without producing any other result than wearing out the belt and heating the pulley.

There are, of course, means for obviating slip to a certain degree. Probably those most commonly employed are the reprehensible habit of covering the periphery of the wheel with oil, resin, or adhesive matter, or of tightening the band, thereby bringing heavy pressure to bear upon the journals, increasing the friction and expediting the wear of the belt. Better than either of these is a plan which has lately come under our notice which consists in covering the pulley with a flat band of elastic rubber and cloth made about one inch per foot shorter than the circumference, and with its inside face unvarnished. This is stretched around the wheel and cemented fast. It is plain at once that, by this means, friction between belt and pulley must be materially increased, but to what extent the following results of experiment will best show. The tests made in our presence were conducted on an special apparatus consisting of two 12 inch pulleys on a shaft in bearings so that it could freely revolve. Upon one wheel the inventor had placed his cover; the other had a plain smooth face. Over the plain wheel was passed a four inch belt, one end of which was secured to the floor; to the extremity (the slack side of the band) were hung adjustable weights. Upon the covered pulley a two inch belt was placed, which also carried a

weight at one end, but at the other was attached to a hand lever. On suspending 20 pounds to the small band, and some 60 pounds to the large one, it was found, on applying a pressure to the lever, that the smooth wheel was caused to slip with great readiness. Without augmenting the weight on the small band, that bearing upon the smooth wheel was increased to 108 pounds, in spite of which the latter was easily and by the same means made to slip. Above this limit, however, the power of the covered wheel did not extend, and on the addition of more weight it also began to yield. The result may, therefore, be summed up in the fact that the friction of 29 pounds opposing the pressure of a hand lever on a 2 inch belt, aided by the pulley cover, was sufficient to overcome the friction of 108 pounds acting on a four inch belt, opposing a solid support, but applied to a smooth though otherwise similar pulley.

A second test was made with a smaller apparatus, having an 8 inch pulley and a 1 inch belt. The result was gained by the aid of a lever and steel yard suitably arranged. With the pulley smooth the scale marked 3½ pounds, when the belt slipped freely. When, however, the cover was applied to the surface of the same wheel, the pointer indicated 19 pounds, or some 5 times the resistance. It would seem from the above that the claim of the inventor, that his device will transmit 100 per cent more power than the smooth pulley and consequently do twice the work before the belt will slip, is well founded, as such estimates are manifestly much below those obtained by actual trial.

So simple and effective an invention as this is worthy of the attention of machinists generally. It is readily and quickly applied, and in point of expense is inconsiderable in comparison with the economy which its employment must produce. We are informed that it is durable. The examples now in use for fourteen months exhibit no appreciable sign of wear.

ALCOHOL IN BREAD.

In the ordinary process of bread fermentation a portion of the sugar contained in the flour is decomposed and converted into alcohol. It has been hitherto supposed that by the heat of baking the whole of this alcohol was expelled, but recent experiments, made by Thomas Bolas, in London, indicate that a perceptible amount of alcohol still remains in yeast-raised bread after baking. The result of six experiments showed that one third of one per cent in weight of alcohol was obtainable from fresh baked bread; but the quantity of alcohol was much less in stale bread. From forty loaves of fresh bread, two pounds each, alcohol equal to one bottle of port wine may be extracted. From what is known as "aerated," or bread raised by mixture of carbonic acid gas with the dough, without fermentation, no alcohol can be extracted.

ENAMELED IRON.

M. Feligot has made a report to the Society for the Encouragement of Industry, on the enameled wrought and cast iron work introduced by M. Paris about twenty-five years ago, and for which the Society have awarded him two medals. According to the report in question, the enamel used is a true transparent glass which allows the color of the iron to show through, very tenacious, having the same power of dilatation as iron, and capable of resisting powerful acids. The ordinary white enameled ware of Paris generally contains lead, and often in large proportions, and is liable to be attacked by even very weak acids. M. Paris' ware has been employed for many purposes; cast iron vases for gardens decorated in imitation of old Rouen ware have been exposed to all weathers without suffering any injury; a chimney in enameled plate iron was set up at the Mazas prison in 1849; the doors of the gold assay furnace in the laboratory of the Paris mint are of the same, and have borne the effect of nitrous vapors since 1850; in 1866 this enameled iron was selected for street names and house number plates, in several districts of Paris, and the report states that, while other manufacturers make enameled ware of the same appearance as that of M. Paris, the latter has shown its superiority in resisting the effects of time.

Specimens of new applications, lately introduced by M. Paris, were presented to the Society, and included chairs, tables and stools for gardens, enameled on sheet iron and mounted on castings; and stands for dishes, decanters, etc., made in imitation of ancient earthenware, but presenting the superior advantage of bearing heat well.

A WONDER.

Brazil produces, among other products, the wonderful pottery tree of Para. This tree attains a height of one hundred feet before sending out branches. The stem is very slender, seldom much exceeding one foot in diameter at the base. The wood is very hard and contains a large amount of silica—not so much, however, as the bark, which is largely employed as a source of silica in the manufacture of pottery. In preparing the bark for the potter's use, it is first burned, and the residue is then pulverized and mixed with clay in varying proportions. With an equal quantity of the two ingredients a superior quality of ware is produced. It is very durable, and will bear almost any amount of heat. The

natives employ it for all manner of culinary purposes. When fresh the bark cuts like soft sandstone, and the presence of the siliceous may be readily ascertained by grinding a piece of the bark between the teeth.

DOES HE SLEEP WELL?

Great workers must be great resters. Nature collects taxes from all who overstrain her powers. Every man who has clerks in his employ ought to know what their sleeping habits are. The young man who is up till two, three and four o'clock, in the morning, and must put in his appearance at the bank or store at nine or ten o'clock, and work all day, cannot repeat this process many days without a certain shakiness coming into the system, which he will endeavor to steady by some delusive stimulus. It is in this way that many a young man begins his course to ruin. He need not necessarily have been in bad company. He has lost his sleep; and in losing sleep is losing health and grace. It is true that sleeplessness may sometimes be involuntary. There may have been some shock to a man's nerves which has made him insomniac; but sleeplessness is more frequently voluntary. Men choose to push their studies or their work into those hours when they should be asleep. It does not matter for what cause any man may do this; the mere fact of not sleeping spoils his case. He may spend his nights in the theatre, in the study, or in the "protracted meeting." It will make no difference; the result will be the same. The sleep was not had, and for that the man must pay. One man may do with less sleep than another; but, as a general rule, if you want a clerk, a lieutenant, a lawyer, a physician, a legislator, a judge, a president or a pastor, do not trust your interests to any man that does not take on the average eight good, solid hours of sleep out of every twenty-four. Whatever may be his reason for it, if he does not give himself that, he will snap something just when you want him to be strong.

THE DEVIL FISH.

In the Brighton aquarium, England, an experiment was lately tried to ascertain how this frightful monster secures his prey. A crab was so fastened that the string could be withdrawn, and was lowered near to the great male octopus. He was sleepy, and required a great deal of tempting, but the sight of his favorite food overcame his laziness, and he lunged out an arm to seize the precious morsel. It was withdrawn from his reach; and so, at last, he turned out of bed, rushed at it, and got it under him against the plate glass, just as was desired. In a second the crab was completely pinioned. Not a struggle was visible or possible; in each leg, each claw, was grasped all over by suckers—enfolded in them—stretched out to its full extent by them. The black tip of the hard, horny beak was seen for a single instant protruding from the circular orifice in the centre of the radiation of the arms, and next had crushed through the shell, and was buried deep in the flesh of the miserable victim. The action of an octopus when seizing its prey for its necessary food is very like that of a cat pouncing on a mouse, and holding it down beneath its paws. The movement is as sudden, the scuffle as brief, and the escape of the prisoner even less probable. The fate of the crab is not really more terrible than that of the mouse, or of a minnow swallowed by a perch; but there is a repulsiveness about the form, color, and attitudes of the octopus which invests it with a kind of tragic horror.

MEN OF ACTION.

Some men seem to be sent into the world for purposes of action only. Their faculties are all strung up to toil and enterprise; their spirit and their frame alike redolent of energy. They pause and slumber like other men; but it is only to recruit from actual fatigue. They occasionally want quiet, but only as a refreshment to prepare them for renewed exertion; not as a normal condition to be wished for or enjoyed for itself. They need rest, not repose. They investigate and reflect; but only to estimate the best means of attaining their ends, or to measure the value of their undertakings against the cost. They think; they never meditate. Their mission, their enjoyment, the object and condition of their existence, is work; they could not exist here without it. They cannot conceive another life as desirable without it; their amount of vitality is beyond that of ordinary men; they are never to be seen doing nothing. When doing nothing else, they are always sleeping. Happy souls! Happy men at last.

—A correspondent of a Richmond paper says—Just after we left Roundville Judge O., of Charlottesville, commenced his jokes, and soon had all the passengers in a roar. "I'll tell you what I can do," said the Judge to a correspondent of a New York paper; "you may think of any time you please, whether I have heard it or not, and by seeing you keep the time with your fingers I can tell what you are playing." The correspondent was skeptical. After thinking a moment he commenced piano playing on the back of the seat in front of him with all the grace of a professional. "What am I playing now?" he asked eagerly, and with an air of triumph. "You are playing—the fool," replied the Judge.