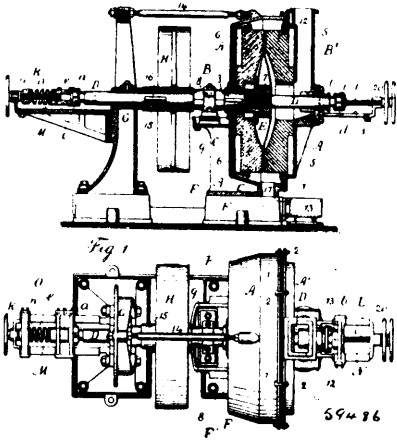


two part case surrounding the stones and to one part of which the stationary stone is secured, there being a central opening to the sta-

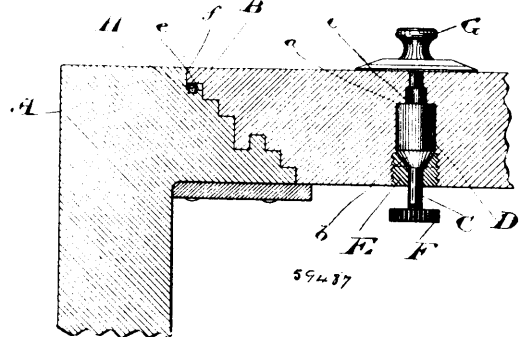


tionary stone and a supply pipe for the paper stock, bearings at the ends of the horizontal shaft and a spring for pressing the runner stone towards the stationary stone and a screw for limiting the movement, the stones having concave recesses in their central portions and a centrifugal propeller connected with the shaft and acting to force the pulp outward between the stones, substantially as set forth. 3rd. In a paper stock refining machine, the combination with a horizontal shaft and bearing for supporting the same, of a runner stone and a holder for the same secured upon the shaft, a stationary stone and a two part case surrounding the stones and to one part of which the stationary stone is secured, there being a central opening to the stationary stone and a supply pipe for the paper stock, bearings at the ends of the horizontal shaft and a spring for pressing the runner stone towards the stationary stone and a screw for limiting the movement, a driving pulley with a hub surrounding the horizontal shaft between its two bearings and having a key connection that allows the shaft to be moved endwise through the hub of the pulley as the runner stone may yield, substantially as set forth. 4th. In a paper stock refining machine, the combination with a horizontal shaft and bearings for supporting the same, of a runner stone and a holder for the same secured upon the shaft, a stationary stone and a two part case surrounding the stones and to one part of which the stationary stone is secured, there being a central opening to the stationary stone and a supply pipe for the paper stock, bearings at the ends of the horizontal shaft and a spring for pressing the runner stone towards the stationary stone and a screw for limiting the movement, an adjustable tie-rod connecting the two part case with the frame or bearing stand of the machine for supporting the case and the stationary stone and for ensuring the proper alignment of the stationary stone with the runner stone, substantially as set forth. 5th. In a paper stock refining machine, the combination with a horizontal shaft and bearings for supporting the same, of a runner stone and a holder for the same secured upon the shaft, a stationary stone and a two part case surrounding the stones and to one part of which the stationary stone is secured, there being a central opening to the stationary stone and a supply pipe for the paper stock, bearings at the ends of the horizontal shaft and a spring for pressing the runner stone towards the stationary stone and a screw for limiting the movement, and a screw for adjusting the pressure of the spring, substantially as set forth. 6th. The combination with the frame and its bearings, of a shaft supported in the bearings, a holder and runner stone upon such shaft, a stationary case surrounding the stones, a stationary stone supported by the removable portion of the case and a supply pipe on said removable portion of the stationary stone for supplying the material to be ground or refined, troughs projecting from the frame below the respective ends of the shafts, collars sliding upon the edges of the troughs a screw acting in one direction to limit the approach of the runner to the stationary stone, a spring for pressing such runner towards the stationary stone and a screw and cross piece for adjusting the pressure of the spring, substantially as set forth. 7th. The combination with the frame and its bearings, of a shaft supported in the bearings, a holder and runner stone upon such shaft, a stationary case surrounding the stones, a stationary stone supported by the removable portion of the case and a supply pipe on said removable portion of the case opening through the eye of the stationary stone for supplying the material to be ground or refined, troughs projecting from the frame below the respective ends of the shaft, collars sliding upon the edges of the troughs, a screw acting in one direction to limit the approach of the runner to the stationary stone, a spring for pressing such runner towards the stationary stone and a screw and cross piece for adjusting the pressure of the spring, hard metal bearings at the ends of the shaft, the troughs containing lubricating material for such bearings, substantially as set forth. 8th. In a paper stock grinder or refiner, the combination with the stationary

stone, of a shaft, a holder fitting a tapering portion of the shaft, and a stone secured in such holder, a nut screwed upon the shaft and securing the hub upon the tapering portion of such shaft, and a propeller having a hub surrounding the cylindrical nut and secured thereto, substantially as specified.

No. 59,487. Burglar-Proof Safe.

(*Coffre-fort à l'épreuve des voleurs.*)



Thomas West, Toronto, Ontario, Canada, 1st April, 1898; 6 years. (Filed 16th March, 1898.)

Claim.—1st. In a safe, a jamb with rabbeted edges and a door correspondingly rabbeted to fit the jamb, in combination with a strip of hollow rubber packing secured to the bottom of the first rabbets from the surface of the safe, substantially as and for the purpose specified. 2nd. In a safe, a jamb with rabbeted edges and a door correspondingly rabbeted to fit the jamb, in combination with a strip of hollow rubber packing secured to the bottom of the first rabbets from the surface of the safe, and placed close to the side of the rabbet so as to be pressed into contact therewith by the closing of the door, substantially as and for the purpose specified. 3rd. In a safe, a door suitably bored, in combination with a spindle shouldered to prevent its withdrawal, and a nut adapted to retain the spindle in place, the nut and spindle being so shaped that force applied to drive the spindle inwards tends to expand the nut, substantially as and for the purpose specified. 4th. In a safe, a door suitably bored to receive a spindle, in combination with a spindle provided with an enlarged portion and tapered towards the inside of the door, and a nut screwed into the door on the inside and bored with a taper to bear against the tapered portion of the spindle, substantially as and for the purpose specified. 5th. In a safe, a door suitably bored to receive a spindle, in combination with a spindle provided with an enlarged portion and tapered towards the inside of the door, and a nut screwed into the door on the inside, bored with a taper to bear against the tapered portion of the spindle, the angle of the taper being less than the angle of the taper of the spindle, substantially as and for the purpose specified. 6th. In a safe, a door suitably bored to receive a spindle, in combination with a spindle provided with an enlarged portion and tapered towards the inside of the door, and a nut screwed into the door on the inside, bored with a taper to bear against the tapered portion of the spindle, and partly split at the inner end, substantially as and for the purpose specified. 7th. In a safe, the door B, suitably bored to receive a spindle and nut in combination with the spindle C, provided with a portion *c* closely fitting the bore in the door, the enlarged portion D, forming a shoulder *a* closely fitting a similar shoulder in the bore, the tapered portion *b*, and the nut E, tapered to bear against the tapered portion of the spindle, substantially as and for the purpose specified. 8th. In a safe, the door B suitably bored to receive a spindle and nut in combination with the spindle C, provided with a portion *c* closely fitting the bore in the door, the enlarged portion D, forming a shoulder *a* closely fitting a similar shoulder in the bore, and the tapered portion *b*, and the nut E tapered to bear against the tapered portion of the spindle, the angle of the taper being less than the angle of the taper of the spindle, substantially as and for the purpose specified.

No. 59,488. Anti-friction Bearing.

(*Coussinet de tourillon sans friction.*)

James E. Lawrence, Farnham, Quebec, Canada, 1st April, 1898; 6 years. (Filed 10th March, 1898.)

Claim.—1st. An anti-friction bearing, comprising a shaft, an annulus surrounding a portion of said shaft, but not engaging therewith, a series of rolling anti-friction devices supported on the annulus, and a flange or lateral extension on a disc, ring or sleeve upon the shaft, and provided with an internal bearing surface for the anti-friction devices, substantially as specified. 2nd. A anti-friction bearing comprising a shaft, an annulus surrounding a portion of said shaft, but not engaging therewith, a series of rolling anti-friction devices supported on the annulus, and a flange or flanges upon the shaft, provided with internal bearings for the anti-friction devices, a series of outer rolling anti-friction devices engaging with