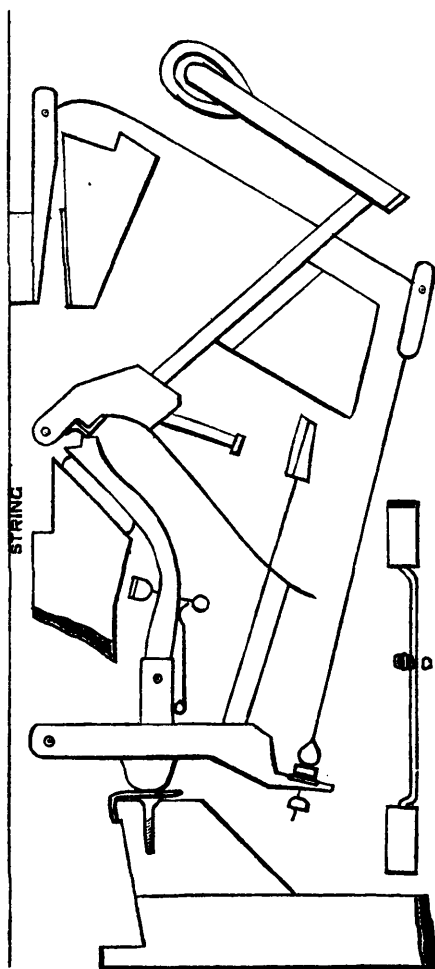


still has not the disadvantage of difficulty in removal presented by the modern actions by the last-named maker. 10. Either the hammer and level-rail, or the damper-rail, may be easily detached without touching the other rail or affecting or displacing any other portion of the action. This is effected by screwed slips. 11. The action is extremely little liable to get out of order. 12. The damper being below the hammer-head, there is greater facility for tuning by wedge-stop, thus favoring the employment of the interposed form of soft pedal, or the use of three strings to one note. 13. The hammer-shank is so planted, and the hammer-block is of such a form, that both assist the return of the hammer, independently of the lower angle at which shank of latter is set.



WARMAN'S UPRIGHT PIANOFORTE ACTION.

The loud pedal is obtained by pushing the bass end of the damper-beam a little away from the strings in the usual manner. The soft pedal is *preferably* obtained by the interposed method—i.e., a strip of felt between hammer and string; for tuning, the entire action may—if the stringing permit of it—be moved a little to the right, the necessary provisions for this being made in the fitting of the action frame.

A light spring may be applied beneath the damper-tail if an easier touch be desired. If greater length of string be required without obliqueing, employ a sticker between the key and the hopper-lever; the tail-lever at bottom of sticker should be of solid buckskin, as in the former Wornum sticker-action. The hammer-shank may, if desired, be $\frac{1}{2}$ in. shorter than in drawing (which latter is nearly half-size), and the hammer-head reduced in thickness. With oblique stringing there may, of

course, be addition side-surface given to the under-spur of the hopper-lever.

The points in the action which are Mr. Warman's own improvements are these:—1st. The position and design of the damper. 2. The repeating block to the fly or hopper (a similar block has, however, long been applied to the common hopper). 3. The direct-action-of-escape *without* sacrificing the exterior regulation of the same. 4. Cranked check-wire and tie-wire. 5. Increased length of string. 6. Improved affixture of key-tail cloth. 7. Actuation and regulation of the damper. 8. Angle at which hammer is set. 9. Wire between hammer shanks. 10. Noiseless fall of hopper, and easily renewable bed for ditto. 11. Facility for independent removal of any portion of the action.

The engraving is nearly half-size; C is the check and bottom lever, as seen from the front.

WESTERN CONNECTIONS OF THE GRAND TRUNK.

The Grand Trunk Railway gets substantial aid towards securing a western connection by the sale of its Rivière du Loup branch to the Dominion government for \$1,500,000 *without the rails*. The latter are iron, and need renewal, but in this country they would probably be worth \$250,000 simply as old rails.

The sale is a good one, for this line has often not paid the cost of working it, and though the completion of the Intercolonial to a connection with it has largely increased its traffic (it is the sole Western connection of the Intercolonial), the profits still are, and are likely to remain, trifling. The Government buys in order to complete its road to Quebec, instead of leaving it as now with its terminus at a little village on the St. Lawrence, and with no source of traffic from the West in its own control. But the chief reason for purchasing seems to have been to aid the Grand Trunk in getting control of a road to Chicago or other Western city. Substantially, by this roundabout way, the Dominion of Canada is to buy or build a road in the United States, not for itself, it is true, but for one of its corporations. This is more generous treatment than American corporations are in the habit of getting. Imagine the United States buying an unprofitable branch of a Minnesota road on condition that the money should be spent in building a line to Manitoba for the avowed purpose of competing with Canadian roads already built! It is true that the Canadian Government does not require in terms that the purchase money should be spent for a railroad to Chicago, the terms being, "That payment for the purchase money shall only be made to cover the expenditure for such purposes in connection with the Grand Trunk Railway as the Government shall consider conducive to the public interest;" but the western connection is what the company wanted the money for and what the Canadian Parliament expects it to be used for.

This gives the Grand Trunk a great advantage over the Great Western. It is now in a measure compelled to get a Western connection and does not so much need the help of the other great Canadian company in securing it. If it can command the Port Huron & Lake Michigan and the old Peninsular, without making further expenditures, the \$1,500,000 will probably pay the whole cost of a new line between Flint and Lansing to unite them and also of the road from Valparaiso, Ind., to the Chicago Southern, which will give an independent entrance into Chicago. If these be made and a new line be built from Toledo to Detroit to connect the Wabash and the Grand Trunk, then some 180 miles of railroad will be constructed, all duplications of existing lines, and adding nothing whatever to the railroad facilities of the country, but serving solely to enable one company to compete with others to better advantage. Indeed, so far as the cost of conducting traffic is concerned, it would be better to throw the money they will cost into the sea, rather than build these roads with it; for it would certainly be cheaper to carry all the traffic on the existing roads than to divide it between them and another. It may be the best thing for the Grand Trunk to do, and it is barely possible that shippers may profit by it; though that is not probable, for when the Grand Trunk gets its road it will want to make something out of it, and it certainly cannot if the rates are lower than they have been of late years. But for the community at large such an expenditure is a pure waste, and it is not creditable to our civilization that we have not found some means of preventing such wastes. It will not be so serious in this case, doubtless, as in many others that might be named, but it is peculiarly striking because all the road in the lines described will be directly alongside of existing roads, so that there can be no new facilities worth the mention given for local traffic. The new lines will have no through traffic and no local traffic which they do not take from other roads.